

# Forensic entomology the neglected discipline of science

## Abstract

Medico-legal entomology is the study of the invasion of the succession pattern of arthropods with their developmental stages of different species found on the decomposed cadavers during legal investigations. Arthropods represent one of the major causes of death in poor countries, chiefly in the tropical African countries where many types of arthropods are present and there is no forensic specialist personnel's and also there are no diagnostic tools. Collaboration between international organizations such as world health organization and local authorities must occur to increase the level of knowledge and practice of forensic entomology throughout the world, certainly in the tropical poor countries.

**Keywords:** forensic, arthropods, entomology

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## Opinion

The discipline of forensic entomology is multidisciplinary. It includes the fields of insect taxonomy, physiology, genetics, acarology, population dynamics, ecology, and statistics. Although entomological confirmation is most often using to establish a piece of the postmortem interval in human and animal death, it often involves food product pollution cases, and urban entomology.<sup>1</sup> Apart from an early case report from China (13<sup>th</sup> century) and later artistic participations, the first observations on insects and other arthropods as forensic indicators were documented in Germany and France during mass exhumations in the late 1880s by Reinhard and Hofmann, whom we propose recognizing as co-founders of the discipline. After the French publication of Mégnin's popular book on the applied aspects of forensic entomology, the concept rapidly extends to Canada and the US. At the time, researchers identified that the lack of systematic observations of forensically important insects stood in the way of their use as indicators of postmortem interval.<sup>2</sup> Universal advances in insect taxonomy, and ecology helped close this gap over the following decades. the majority cases that engage a forensic entomologist are 72h or more old, as up until this time, other forensic techniques are similarly or more accurate than the insect evidence. But, after three days, insect evidence is often the most accurate and sometimes the only process of determining elapsed time since death.<sup>3</sup> Medico-legal entomology is an important science to detect death caused by scorpions and other poisonous arthropods, particularly in the tropical countries, where there are no forensic entomologist specialists despite the prevalence of numerous types of poisonous and killer arthropods in that parts of the globe.

Medico-legal entomologists frequently work with mites, spiders, ticks, and other non-insect arthropods. Maggots often appear almost immediately after death. Dead individuals release a specific chemical that maggots can detect, which causes them to find and feed off the body. Certain criteria and skills must be present in forensic entomologist such as:

- I. interest in arthropods
- II. Hold a degree in biology

III. Communication skills

IV. Information in law

V. Public speaking skills.<sup>4</sup>

Many of modern diagnostic techniques have been developed and applied in the medico-legal entomology for example:

I. Scanning electron microscopy

II. Potassium permanganate staining

III. Mitochondrial DNA

IV. Gene expression studies.<sup>5</sup>

But most of these accurate diagnostic methods are not available in most of tropical countries where there is excess numbers of arthropods. Many efforts are required to increase the knowledge about forensic entomology particularly in poor countries where there is no effective control measures to the dangerous arthropods.

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## Conflicts of interest

The author declares that there are no conflicts of interest.

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